

Recovery Plan Action Status

Plan Name: Revised Recovery Plan for Three Endangered Species Endemic to Antioch Dunes, California

Plan Status: Final Revision 1

Plan Date: 25-Apr-84

Lead Agency: USFWS

Lead Office: Sacramento Fish And Wildlife Office

(916)

414-6600)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lange's metalmark butterfly (Apodemia mormo langei), Contra Costa wallflower (Erysimum capitatum var. angustatum), Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	1	1111	Acquire Sardis property	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Division of Realty	Acquisition: Fee Title	Contract, Internal Technical Assistance	Purchase completed in FY 80, \$2.2 million
Lange's metalmark butterfly (Apodemia mormo langei), Contra Costa wallflower (Erysimum capitatum var. angustatum), Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	1	1112	Acquire Stamm-Starr property	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Division of Realty	Acquisition: Fee Title	Contract, Internal Technical Assistance	Purchase completed in FY 80 within aquisition of Sardia property

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	1	1113	Develop management plan	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service National Wildlife Refuge System	Management: Planning	Internal Technical Assistance	FY 82, 83 PA Obj. 06, 5c(2)b Refuge completed their Comprehensive Conservation Plan (CCP) in August 2002. It includes enhancement of dune habitat for the listed species. In 2007 a biological opinion was completed that allowed incidental take of the listed species while conducting restoration activities. These activities were provided as a management plan for the restoration of the Antioch Dunes.
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	1	1114	Manage refuge lands	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service National Wildlife Refuge System	Management	Internal Field Assistance, Internal Technical Assistance	Ongoing AWR PA obj.
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	1121	PG&E MOU	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Endangered Species Division	Acquisition: Management Agreement	Internal Technical Assistance	Safe Harbor agreement with Partners Program at SFWO will allow PG and E to conduct O and M at their sites in the Sardis Unit. Safe Harbor agreement is completed.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	1122	Domtar MOU	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Endangered Species Division	Acquisition: Management Agreement	Internal Technical Assistance	
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	1123	McCullough MOU	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Endangered Species Division	Acquisition: Management Agreement	Internal Technical Assistance	
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	121	Develop with other owners habitat management plan	Ongoing Current	FY 2008		U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Other: Administration	Internal Technical Assistance	Have contacted surrounding businesses and developed verbal agreements.
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	122	Other essential habitat MOU	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Acquisition: Management Agreement	Internal Administrative	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	123	Identify other essential habitats	Partially Complete	FY 2006		U.S. Fish and Wildlife Service, Endangered Species Division, California Department of Fish and Game	Research: Habitat Status	Internal Field Assistance	In spring 2008 conducted survey of Antioch Dunes Evening Primrose at the Brannan Island State Park.
Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	221	Annual census of Antioch Dunes evening primrose	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service National Wildlife Refuge System, California Department of Fish and Game	Research: Population Surveys	Internal Field Assistance	Consistent annual survey conducted since 1986 has revealed variable annual trends, but overall decreasing trend which is now being reversed (FY2009) by the implementation of restoration actions.
Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	222	Propagate and outplant	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service National Wildlife Refuge System	Management: Propagation, Management: Reintroduction	Internal Field Assistance, Volunteer	Have outplanted 500 primrose from FY2007 to FY2009. Additional volunteer sprouts from seed bank occur when bare sand is revealed after grasses and forbs removed.
Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	2231	Develop habitat restoration plan for Antioch Dunes evening primrose	Ongoing Current	FY 2007		U.S. Fish and Wildlife Service National Wildlife Refuge System	Management: Planning	Internal Technical Assistance	A new BO outlines more aggressive actions for restoration.
Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	2232	Conduct life history studies of Antioch Dunes evening primrose	Complete	Prior to FY 1995	Prior to FY 1995	U.S. Fish and Wildlife Service, Endangered Species Division	Research: Demographic Studies, Research: Other Information	Contract, Internal Field Assistance, Internal Technical Assistance	
Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	2233	Implement Antioch Dunes evening primrose habitat restoration plan	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service National Wildlife Refuge System	Management: Habitat Maintenance and Manipulation	Internal Field Assistance, Volunteer	The conservation plan and the biological opinion both provide management activities that are currently being implemented to restore the Antioch Dunes NWR habitat.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lange's metalmark butterfly (Apodemia mormo langei), Contra Costa wallflower (Erysimum capitatum var. angustatum), Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	2	24	Rebuild natural dune topography with dredge spoil sand	Ongoing Current	Prior to FY 1995		Port of Stockton, California, U.S. Fish and Wildlife Service National Wildlife Refuge System, U.S. Army Corps of Engineers	Management: Habitat Maintenance and Manipulation	Internal Field Assistance, Volunteer	80 truckloads costing \$25K were delivered in FY2009. New funding in FY 2011 will allow for additional sand acquisition. Plan is to place sand at the west end of Stamm Unit.
Lange's metalmark butterfly (Apodemia mormo langei), Contra Costa wallflower (Erysimum capitatum var. angustatum), Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	2	25	Remove exotic vegetation including vineyard	Ongoing Current	Prior to FY 1995		California Native Plant Society, U.S. Fish and Wildlife Service National Wildlife Refuge System, California Department of Fish and Game	Management: Habitat Maintenance and Manipulation	Internal Field Assistance, Volunteer	
Lange's metalmark butterfly (Apodemia mormo langei), Contra Costa wallflower (Erysimum capitatum var. angustatum), Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	2	31	Interpretive signs	Complete	Prior to FY 1995	FY 2008	U.S. Fish and Wildlife Service National Wildlife Refuge System	Other: Information and Education	Internal Field Assistance	Signs are in place at both Stamm and Sardis Units.
Lange's metalmark butterfly (Apodemia mormo langei), Contra Costa wallflower (Erysimum capitatum var. angustatum), Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii)	2	32	Prepare, print, and distribute information leaflets	Ongoing Current	Prior to FY 1995		California Native Plant Society, U.S. Fish and Wildlife Service National Wildlife Refuge System, California Department of Fish and Game	Other: Information and Education	Internal Field Assistance, Internal Technical Assistance	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Lange's metalmark butterfly (<i>Apodemia mormo langei</i>), Contra Costa wallflower (<i>Erysimum capitatum</i> var. <i>angustatum</i>), Antioch Dunes evening-primrose (<i>Oenothera deltoides</i> ssp. <i>howellii</i>)	2	33	Develop environmental education program	Ongoing Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service National Wildlife Refuge System	Other: Information and Education	Internal Field Assistance, Internal Technical Assistance, Volunteer	Refuge staff works with local schools for volunteer service and education days on the refuge grounds.